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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,728	04/04/2001	Tomohito Kunda	15-7	1763

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EXAMINER

BELLAMY, TAMIKO D

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 10/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/824,728

Applicant(s)

KUNDA, TOMOHITO

Examiner

Tamiko D. Bellamy

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Applicant's cancellation of claims 2, 9,10,11,12, and 13 in Paper No. 11 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagahara (6,323,529) in view of Ishio et al. (6, 448,624).

As to claim 1, Nagahara discloses in Figs. 1 and 2 a semiconductor sensor chip 3 having a member movable, and a substrate 5 for mounting and supporting semiconductor sensor chip 3, (col. 3, lines 45-53).

As to claim 2, Nagahara discloses wherein the substrate 5 is a semiconductor chip having a circuit for processing the sensor signal (col. 3, lines 45-53), and the semiconductor sensor chip 3 is connected to the first surface of the semiconductor chip 5, and a second surface of the semiconductor chip 5 connected to the package case 2.

As to claim 6, Nagahara discloses a semiconductor sensor chip 3 for sensing acceleration (col. 3, line 51).

Nagahara does not clearly disclose a semiconductor sensor chip connected to the substrate via an adhesive film (cl. 1), the adhesive film is made of thermosetting resin or a thermoplastic resin (cl. 3), the thickness of the adhesive film is less than 50 μm (cl. 4), an

Art Unit: 2856

elasticity coefficient of the adhesive film is less than 3,000 mega pascal (cl. 5). However Nagahara does mention that the sensor chip has a three-layer structure of glass-silicon-glass and is fixed to a die pad using die bond resin.13 (col. 3, lines 54-56). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Nagahara to include a resin adhesive between the first layer of the sensor chip and the semiconductor chip for the purpose of providing a sensor chip that is reinforced and increases the sensibility of the sensor.

As to claim 1 Ishio et al. discloses in Fig. 1 a semiconductor sensor chip 21 connected to the substrate 27b via an adhesive film 31 (col. 9, lines 25-44, col. 10, lines 27-36).

As to claim 3, Ishio et al. discloses an adhesive film 31 that is made of thermosetting resin or a thermoplastic resin (col.10, line10). Ishio et al. makes use of a polyimide resin that is inherently a thermoplastic resin as claimed.

As to claim 4, Ishio et al. discloses the thickness of the adhesive film 31 that is less than 50 μm (col. 9, lines 47-48). Ishio et al. makes use of a polydivinylbenzene mixture of about 8 μm . However, Ishio et al. states that any number of resins such as polyimide resin which is inherently a thermoplastic resin can be used. As well know in the skill in the art, one can use the same amount of mixture as Ishio et al. discloses with any of the supplemented resins mentioned.

As to claim 5, Ishio et al. discloses an elasticity coefficient of the adhesive film 31 that is less than 3,000 mega pascal. (col. 10, lines 10-16).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Nagahara to include the teachings of Ishio et al. to provide a semiconductor sensor chip connected to the substrate via an adhesive film for the purpose of

Art Unit: 2856

placing the sensor chip and the semiconductor chip sufficiently close together and accurately detecting a smaller range of acceleration.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (703) 305-4971. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Tamiko Bellamy

T.B.
September 20, 2002


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
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